

BOOK REVIEWS

The Growth of Biological Thought. Diversity, Evolution, and Inheritance.—
Ernst Mayr. 1982. Belknap/Harvard University Press, Cambridge, Massachusetts, xiii + 974 pp. \$30.00.

This is a big book, containing close to a thousand pages of densely packed facts, interpretations and opinions. It is not light reading, but in general it is clearly written and unambiguous. After a first reading through, I think many biologists will find it valuable above all as a reference work, albeit one often as strongly colored by the author's personal viewpoints as was Dr. Johnson's dictionary.

Major themes of the work are the long struggles, now all but completely won, of biological-evolutionary science against the retarding forces of essentialism, natural theology, and reductionism, and the rise at last of population thinking and natural selection theory. These themes are driven home relentlessly throughout the book, occasionally through repetition that exceeds the bounds of didactic advantage. Examples of some other less conventional but welcome lines of thought are Mayr's espousal of the philosophy of emergence, and his vigorous correction of the common misconception that Lamarck was a failed evolutionist.

The range of literature in philosophy and science that is covered (and referenced) in this history is truly impressive, and the reader learns again and again of important contributions by scholars whose names have been barely familiar to most.

Like many histories that reach into present times, this one tends to fall off into spotty and idiosyncratic, often perfunctory discussion of evolutionary issues currently in controversy—for example, group selection. I doubt whether there really is a "general consensus" that most ostensible group selection cases "can be interpreted in terms of individual selection, except perhaps in social animals"

Some other interesting topics, probably even less to Mayr's taste, are barely or never mentioned. The revolt against the concept of race (subspecies), so widely flaring in the fifties, was grudgingly recognized by him in 1963, but by 1982, the gate has clanged tight against this and other heretical uprisings. Mayrian peripatric speciation, proposed as a theory of incipient macroevolution in 1954, has become the firm dogma of 1982, although interesting models exist that offer attractive alternatives to some of its main assertions. In contrast to his silence on these ideas, Mayr introduces some contributions of his own, or of his students, that do not seem as cardinaly important to evolutionary theory.

It is difficult indeed to exaggerate the importance of this man in distilling and in teaching to my generation the systematics and evolutionary theory

of the mid-twentieth century, especially through his influential classic of 1942. Yet in a curious way Mayr does himself succeed in producing this exaggeration because, despite disclaimers to the contrary, this history gives the impression that the growth of biological thought has reached a sort of culmination for Mayr in his personal perceptions and opinions (fulsomenly but incompletely indexed on p. 968) of its state as of about 1960. But as the facts related in this great volume suggest, every contributor and his contribution, no matter how fundamentally correct and triumphant they may appear contemporaneously, are liable to suffer some revision as the surprises of time and discovery emerge.

It seems likely to me that the evolutionary understandings of a half century from now will view many of our current concepts as quaint. But looking back a full century from then, to 1933 and earlier, they may well find their agreement with Mayr's history becoming more substantially complete. Let us then celebrate and learn from the earlier periods of coverage by this book, and be cautious about its account of modern times.—*William L. Brown, Jr., Department of Entomology, Cornell University, Ithaca, New York 14853.*

Vicariance Biogeography: A Critique.—Gareth Nelson and Donn E. Rosen (eds.). 1981. Columbia University Press, New York, xvi + 593 pp. \$35.00.

Vicariance Biogeography is a historical approach to biogeography which searches for general patterns of relationship among areas of endemism. These patterns are discovered through congruence among taxa cladograms—congruence which can presumably be attributed to the vicariance of a widespread ancestral biota, but not to the combined effect of chance dispersal events. Vicariance biogeography has also been called the “Platnick, Nelson, and Rosen method” (Patterson, this volume, p. 466) due to the method's formalization by Platnick and Nelson (1978) and application by Rosen (1978). A more lengthy explication of the method may be found in Nelson and Platnick (1981).

Among the more salient factors which have contributed to the formalization of vicariance biogeography are: (1) the growing evidence in support of continental drift (cf. Darlington, 1957, 1965; Tarling and Runcorn, 1973); (2) the introduction of Hennigian phylogenetics into the English language (Hennig, 1965, 1966); (3) the union of continental drift theory and Hennigian phylogenetics (Brundin, 1966); (4) the introduction of Popperian philosophy into phylogenetic systematics (Bock, 1973; Ball, 1975; Wiley, 1975); and (5) the incorporation of various aspects of Croizat's “Panbiogeography” (Croizat et al., 1974; Rosen, 1975). Application of drift theory to biogeography had already been attempted in Jeannel's *La Genèse des Faunes Terrestres* (1942). Unfortunately, this antedated the vindication of continental drift and the